

ACRONYMS

AWQS	Aquifer Water Quality Standards
BGS	Below Ground Surface
BLS	Below land surface
BTEX	benzene, toluene, ethylbenzene, xylenes
CAP	Corrective Action Plan
COC	Chain of Custody or chemicals of concern
IFCI	International Fire Code Institute.
LUST	Leaking Underground Storage Tank
MCLs	Maximum Contaminant Levels
MRLs	Minimum Reporting Levels
MTBE	Methyl Tertiary Butyl Ether
PAH	Polynuclear Aromatic Hydrocarbon
RAGS	Risk Assessment Guidance for Superfund, a manual entitled, "Superfund Risk Assessment Guidance Manual, Volume I: Human Health Assessment, Interim Final", EPA, 1989, Parts A, B, C, and D.
RBCA	Risk-Based Corrective Actions
RCRA	Resource Conservation and Recovery Act in 42 U.S.C. 6924 (u)
RCRA	Resource Conservation and Recovery Act
SAF	UST State Assurance Fund
SARA	Superfund Amendments and Reauthorization Act of 1986, P.L. 99-499.
SCR	Site Characteristic Report
SRLs	Soil Remediation Levels
TPH	Total petroleum hydrocarbons
UST	Underground Storage Tank

GLOSSARY

Accidental release means, with respect to USTs only, any release of petroleum from an UST system that is neither expected nor intended by the UST system owner or operator, that results in a need for one or more of the following:

Ancillary equipment means any device used to distribute, dispense, meter, monitor, or control the flow of regulated substances to and from an UST system.

Aquifer means a geologic unit that contains sufficient saturated permeable material to yield usable quantities of water to a well or spring.

Backward Calculation means a procedure that calculates the chemical concentration corresponding to some target risk level. Achieved by combining and rearranging the equations used in forward calculations and substituting a target risk level for chemical concentration.

Baseline Risk Assessment means a comprehensive risk assessment based on conditions existing before remediation. Baseline risk assessments are usually based on information gathered during a remedial investigation (RI) and the results are often used to establish cleanup goals.

Cancer Burden means a number obtained by multiplying the cancer risk estimate by the number of people in the population at risk. Identifies the number of individuals in population at risk that will develop cancer. Assumes that all members of the population are exposed in the manner assumed in the risk assessment.

$$\text{Cancer Risk} = \text{concentration} \times \text{intake level} \times \text{cancer potency factor}$$

Cancer Risk Estimate means an estimate of the probability that an individual will develop cancer during a lifetime if exposed to a carcinogen or carcinogens in the manner assumed in the risk assessment that produced the estimate. Obtained by multiplying the dose by the CSF.

Cancer Slope Factor (CSF) means a term adopted by EPA to identify the cancer risk associated with a unit dose of a carcinogen. It is the slope of the curve representing the relationship between dose and cancer risk. When estimated with the linearized multistage model, the CSF is the upper 95 percent confidence limit of the slope (upper-bound estimate of risk). Also called cancer potency factor (CPF). Expressed as risk per mg/kg-day or risk (mg/kg-day)⁻¹.

CAP means a corrective action plan.

Cathodic protection means a technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell.

Cathodic protection tester means a person who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metal piping and tank systems. At a minimum, such a person shall have education and experience in soil receptivity, stray current, structure-to-soil potential, and component electrical isolation measurements of buried metal piping and tank systems.

CERCLA means the federal Comprehensive Environmental Response, Compensation, and Liability Act as defined in A.R.S. § 49-201.

CFR means the Code of Federal Regulations, with standard references in this Chapter by Title and Part, so that "40 CFR 280" means Title 40 of the Code of Federal Regulations, Part 280.

Chemical of concern means any regulated substance detected in contamination from the LUST site that is evaluated for potential impacts to public health and the environment.

Chemical of Potential Concern (COPC). Defined in RAGS Volume I, Part A, Exhibit 5-1 as a chemical that is potentially site related and of sufficient quality to quantify risk. Chosen primarily on the basis of an evaluation of the chemical analytical data and relationship of measured levels to background levels. Health and ecological effects may be considered in the selection of COPCs, but only to reduce their number to one that is convenient for the baseline risk assessment. Criteria for selection are described in RAGS Volume I, Part A. See also EPA, 1992a, page 40, section 3.2.1, *Chemicals of potential concern are chemicals that may be hazardous to human health or the environment and identified at the site, initially from historical sources.*

Clean Water Act has the definition at A.R.S. § 49-201.

Completed Pathway Means an exposure pathway that satisfies five criteria: (1) a chemical source, (2) mechanism of chemical release, (3) a retention or transport medium, (4) a point of potential receptor contact with the contaminated medium, and (5) an exposure route.

Conceptual site model means a description of the complete current and potential exposure pathways, based on existing and reasonably anticipated future use.

Corrective action standard means the concentration of the chemical of concern in the medium of concern that is protective of public health and welfare and the environment based on either pre-established non-site-specific assumptions or site-specific data, including any applied environmental use restriction.

Corrosion expert means a person who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. The person shall be accredited or certified as being qualified by the National Association of Corrosion Engineers or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks.

Cost ceiling amount Means the maximum amount determined by the Department to be reasonable for a corrective action service as described in R18-12-605

Decommissioning means, with respect to Article 8 only, activities described in R18-12-271(C)(1) through R18-12-271(C)(4).

Derived waste means any excavated soil, soil cuttings, and other soil waste; fluids from well drilling, aquifer testing, well purging, sampling, and other fluid wastes; or disposable decontamination, sampling, or personal protection equipment generated as a result of release confirmation, LUST site investigation, or other corrective action activities.

Dielectric material means a material that does not conduct electrical current and that is used to electrically isolate UST systems or UST system parts from surrounding soils or portions of UST systems from each other.

Diesel means, with respect to Article 4 only, a liquid petroleum product that meets the specifications in American Society for Testing and Materials Standard D-975-94, "Standard Specification for Diesel Fuel Oils" amended April 15, 1994 (and no future amendments or editions), which is incorporated by reference and on file with the Department and the Office of the Secretary of State.

Emergency power generator means a power generator, which is used only when the primary source of power is interrupted. The interruption of the primary source of power shall not be due to any action or failure to take any action by the owner or operator of either the emergency generator or of the UST system that stores fuel for the emergency generator.

Engineering Control for soil, surface water and groundwater contamination has the definition at R18-7-201.

Environment means navigable waters, any other surface waters, groundwater, drinking water supply, land surface or subsurface strata or ambient air, within or bordering on this state.

Excavation zone means the volume that contains or contained the tank system and backfill material and is bounded by the ground surface, walls, and floor of the pit and trenches into which the UST system is placed at the time of installation.

Excess lifetime cancer risk level for soil, surface water, and groundwater contamination, has the definition at R18-7-201.

Exposure assessment means the qualitative or quantitative determination or estimation of the magnitude, frequency, duration, and route of exposure or potential for exposure of a receptor to chemicals of concern from a release.

Exposure for soil, surface water, and groundwater contamination, has the meaning defined in R18-7-201.

Exposure Pathway means the mechanism by which a chemical migrates from its source to a biological receptor. Example: source to soil to groundwater to kitchen faucet.

Exposure Route means the route by which a chemical enters or makes contact with the biological receptor. Example: ingestion of contaminated water from a kitchen faucet.

Flow-through process tank means a tank that forms an integral part of a production process through which there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process. The term "flow-through process tank" does not include a tank used for the storage of

materials prior to their introduction into the production process or for the storage of finished products or byproducts from the production process.

Forward Calculation means a conventional risk assessment procedure that calculates the cancer risk or chronic toxicity hazard presented by any given chemical concentration. Baseline risk assessments and PEAs use this procedure.

Free product means a mobile regulated substance that is present as a nonaqueous phase liquid (e.g. liquid not dissolved in water).

Gathering lines means any pipeline, equipment, facility, or building used in the transportation of oil or gas during oil or gas production or gathering operations.

Groundwater means water in an aquifer as defined at A.R.S. § 49-201.

Hazard Index (HI) means the sum of the HQs for multiple substances or multiple exposure pathways.

Hazard Quotient (HQ) means the ratio of a single substance exposure level (dose or concentration) over a specified period of time to the RfD or RfC derived for the same period of time for the same substance. A ratio larger than unity suggests that the concentration of the chemical is high enough to cause chronic noncarcinogenic effects.

Hazardous substance UST system means an UST system that contains a hazardous substance as defined in A.R.S. § 49-1001(14)(b) or any mixture of such substance and petroleum, which is not a petroleum UST system.

Heating oil means petroleum that is No. 1, No. 2, No. 4--light, No. 4--heavy, No. 5--light, No. 5--heavy, or No. 6 technical grades of fuel oil; other residual fuel oils (including Navy Special Fuel Oil and Bunker C); and other fuels when used as substitutes for one of these fuel oils for heating purposes.

Hydraulic lift tank means a tank holding hydraulic fluid for a closed-loop mechanical system that uses compressed air or hydraulic fluid to operate lifts, elevators, and other similar devices.

Induration means the consolidation of a rock or rock material by the action of heat, pressure, or the introduction of some cementing material not commonly contained in the original mass. Induration also means the hardening of a soil horizon by chemical action to form hardpan (caliche).

Installation means the placement and preparation for placement of any UST system or UST system part into an excavation zone. Installation is considered to have commenced if both of the following exist:

Institutional control for soil, surface water, and groundwater contamination, has the definition at R18-7-201.

Liquid trap means sumps, well cellars, and other traps used in association with oil and gas production, gathering, and extraction operations (including gas

production plants), for the purpose of collecting oil, water, and other liquids. These liquid traps may temporarily collect liquids for subsequent disposition or reinjection into a production or pipeline stream, or may collect and separate liquids from a gas stream.

LUST case means all of the documentation related to a specific LUST number, which is maintained on file by the Department.

LUST means a leaking UST.

LUST number means the unique number assigned to a release by the Department after the notification requirements of A.R.S. § 49-1004(A) are met.

LUST site means the UST facility from which a release has occurred.

Maximum Contaminant Level (MCL) means the maximum concentration of a contaminant allowed in drinking water systems by the National Primary Drinking Water regulations: 40 CFR 141.11 and 141.12.

Non-point source means any conveyance which is not a point source from which pollutants are or may be discharged to navigable waters.

Petroleum means petroleum, including crude oil or any fraction of crude oil, which is liquid at sixty degrees Fahrenheit and 14.7 pounds per square inch absolute, and petroleum based substances comprised of a complex blend of hydrocarbons derived from crude oil through processes of separation, conversion, upgrading and finishing, such as motor fuels, residual fuel oils, lubricants, jet fuels, distillate fuel oils, petroleum solvents and used oils.

Petroleum UST system means an UST system that contains or contained petroleum or a mixture of petroleum with de minimis quantities of other regulated substances. These systems include those containing motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

Pipe or Piping means a hollow cylinder or tubular conduit that is constructed of non-earthen materials.

Pipeline facility means new or existing pipe rights-of-way and any associated equipment, gathering lines, facilities, or buildings.

Point of compliance means the geographic location at which the concentration of the chemical of concern is to be at or below the risk-based corrective action standard determined to be protective of public health and the environment.

Point of exposure for soil, surface water, and groundwater contamination, has the definition at R18-7-201 for "exposure point."

Point source means any discernible, confined and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft from which pollutants are or may be

discharged to navigable waters. Point source does not include return flows from irrigated agriculture.

Political subdivision means a county, city, town or other taxing district other than the state that is authorized to take property by eminent domain.

Pollutant means fluids, contaminants, toxic wastes, toxic pollutants, dredged spoil, solid waste, substances and chemicals, pesticides, herbicides, fertilizers and other agricultural chemicals, incinerator residue, sewage, garbage, sewage sludge, munitions, petroleum products, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and mining, industrial, municipal and agricultural wastes or any other liquid, solid, gaseous or hazardous substances.

Preliminary Remediation Goal (PRG). Defined in RAGS, Volume I, Part B as a chemical-specific initial cleanup goal that (1) is protective of human health and the environment and (2) complies with ARARs. PRGs are initially developed on the basis of readily available information and are later modified to reflect the results of the baseline risk assessment. PRGs are also used during the analysis of remedial alternatives in the RI/FS. Examples: EPA and Cal/EPA Soil Screening Levels and EPA Region IX PRGs.

Receptor means persons, enclosed structures, subsurface utilities, waters of the state, or water supply wells and wellhead protection areas.

Reference Concentration (RfC) is a term adopted by EPA to identify the estimate of the chemical concentration that will not cause noncarcinogenic effects during a specified exposure period. Developed for air- and waterborne chemicals. Expressed in micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) or micrograms per liter of water ($\mu\text{g}/\text{L}$).

Reference Dose (RfD) means a term adopted by EPA to identify the estimate of the chemical dose that will not cause noncarcinogenic effects during a specified exposure period. Expressed in milligrams of chemical per kilograms of body weight per day ($\text{mg}/\text{kg}\text{-day}$). At present, available only for oral and inhalation exposures. Dermal RfDs are derived from oral RfDs after correction for absorbed dose.

Representative means the level at which a measured result accurately reflects the medium being sampled. It is generally qualitative in nature, and is addressed through the robustness of the sampling plan, *i.e.* location of samples, number of samples, and the likelihood that the sampled subpopulation represents the true population of possible samples.

Residential tank means an UST system located on property used primarily for dwelling purposes.

Residual Risk Assessment. A risk assessment performed after cleanup has occurred to determine the effectiveness of the remedial action taken. Requires samples of remediated medium (soil or water) to be analyzed for chemicals of concern. Is usually tied to risk reduction determination for cleanups and removals.

Restrictive Covenant means a recorded restriction to a deed of real property providing notice for perpetuity, which runs with the land. Such restrictions may place prohibitions on use, development, or construction.

Risk Assessment means a technical evaluation of the nature and magnitude of risk.

Risk Based Concentration (RBC) means the calculated chemical-specific concentration corresponding to a target risk level, usually a cancer risk level of 10^{-6} for carcinogens and a hazard index of 1.0 for noncarcinogenic effects. Also called risk-based criterion. RBCs are based on a specific set of exposure scenarios and pathways.

Risk characterization means the qualitative and quantitative determination of combined risks to receptors from individual chemicals of concern and exposure pathways, and the associated uncertainties.

Risk means the probability of occurrence of an undesirable event, such as a chemically-induced illness or earthquake.

Screening Risk Assessment means a risk assessment performed to determine the need for further action. Employs a process that rapidly and economically produces a preliminary upper-bound estimate of risk. In California, an approach to screening consists of comparing the highest measured concentration of each chemical with EPA Region IX PRGs (defined herein). Another consists of performing a California Preliminary Endangerment Assessment (defined herein).

Septic tank means a watertight covered receptacle designed to receive or process, through liquid separation or biological digestion, the sewage discharged from a building sewer. The effluent from such receptacle is distributed for disposal through the soil and settled solids and scum from the tank are pumped out periodically and hauled to a treatment facility.

Solid Waste Disposal Act for the purposes of this Chapter means the "federal act" as defined by A.R.S. § 49-921.

Storm-water or wastewater collection system means piping, pumps, conduits, and any other equipment necessary to collect and transport the flow of surface water run-off resulting from precipitation, or of domestic, commercial, or industrial wastewater to and from retention areas or any areas where treatment is designated to occur. The collection of storm water and

wastewater does not include treatment except where incidental to conveyance.

Surface impoundment means a natural topographic depression, artificial excavation, or diked area formed primarily of earthen materials, but which may be lined with artificial materials, that is not an injection well.

Surface water has the definition at A.A.C. R18-11-101.

Surficial soil means any soil occurring between the current surface elevation and extending to that depth for which reasonably foreseeable construction activities may excavate and relocate soils to surface elevation, and any stockpiles generated from soils of any depth.

Tank means a stationary device, including a sump that is constructed of concrete, steel, plastic, fiberglass or other non-earthen material that provides substantial structural support, and that is designed to contain an accumulation of solid, liquid or gaseous materials.

Target Organ Analysis means an analysis performed when the HQ of each chemical is less than unity, but the sum of the HQs exceeds unity. Groups the chemicals according to the effects on which their respective RfDs are based and calculates the HQs by group. Often causes the HQ of all groups to be less than unity. Assumes that the effects of different chemicals are additive only if each chemical produces the same effect, i.e. impacts the same target organ.

Tester means a person who performs tightness tests on UST systems, or on any portion of an UST system including tanks, piping, or leak detection systems.

Toxic pollutant means a substance that will cause significant adverse reactions if ingested in drinking water. Significant adverse reactions are reactions that may indicate a tendency of a substance or mixture to cause long lasting or irreversible damage to human health.

Uncertainty Analysis A process by which factors that affect the estimates of risk are identified and the degree to which they cause risk to be overestimated or underestimated identified. Is site-specific. May be qualitative or quantitative. Examples of factors that often affect risk are body weight, exposure regimen, toxicity estimates, and the information used in fate and transport modeling.

Underground area means an underground room, such as a basement, cellar, shaft, or vault that provides enough space for physical inspection of the exterior of the tank, situated on or above the surface of the floor.

Underground storage tank has the definition at A.R.S. § 49-1001.

Unit Risk Factor (URF) A term adopted by the EPA to identify the cancer risk associated with a unit concentration of a carcinogen in air and water. Permits calculation of cancer risk directly from exposure point concentrations for

chemicals in water and air. Expressed as risk per $\mu\text{g}/\text{m}^3$ for air and risk per $\mu\text{g}/\text{L}$ for water.

UST system or tank system means an UST, connected underground piping, impact valve and connected underground ancillary equipment and containment system, if any.

Vadose zone means the zone between the ground surface and any aquifer.

Volatile regulated substance means any regulated substance that generally has the following chemical characteristics: a vapor pressure of greater than 0.5 mmHg at 20° C, a Henry's Law Constant of greater than 1×10^{-5} atm m³/mol, and which has a boiling point of less than 250° - 300° C.

Waters of the state means all waters within the jurisdiction of this state including all perennial or intermittent streams, lakes, ponds, impounding reservoirs, marshes, watercourses, waterways, wells, aquifers, springs, irrigation systems, drainage systems and other bodies or accumulations of surface, underground, natural, artificial, public or private water situated wholly or partly in or bordering on the state.

Well means a bored, drilled or driven shaft, pit or hole whose depth is greater than its largest surface dimension.